TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

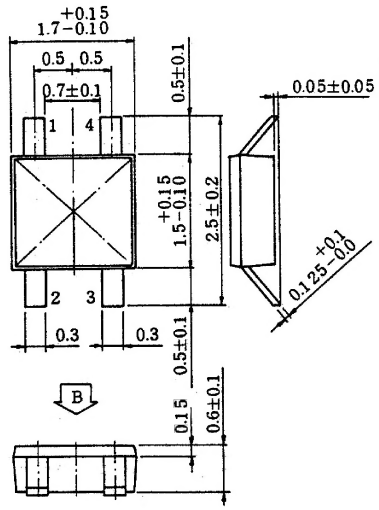
# THS125

HIGH STABILITY MOTOR CONTROL. DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

- Super Small Package.
- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; −55~125°C)
- Excellent Output Voltage Linearity.
- High Internal Resistance. : $R_d$ = 1000Ω (Min.)
- Low Residual Voltage Ratio. : $V_{HO}/V_H$ = ±5% (Max.)

Unit in mm




1 (+) −3 (−) (INPUT)
2 (+) −4 (−) (OUTPUT)

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 10-2A1A |

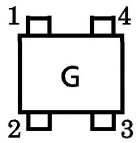
Weight : 0.0047g

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Control Voltage | $V_C$ | 12** | V |
| Power Dissipation | $P_D$ | 150** | mW |
| Operating Temperature Range | $T_{opr}$ | −55~125 | °C |
| Storage Temperature Range | $T_{stg}$ | −55~150 | °C |

** Mounted on a printed circuit board.

Marking




ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Internal Resistance (Input) | $R_d$ | $I_C$ = 1mA | 1000 | 1250 | 1500 | Ω |
| Residual Voltage Ratio | $V_{HO}/V_H$ | $V_C$ = 5V, B = 0 / B = 0.1T | — | — | ±5 | % |
| Hall Voltage (Note 1) | $V_H$ | $V_C$ = 5V, B = 0.1T | 130 | 150 | 170 | mV |
| Temperature Coefficient (Note 2) | $V_{HT}$ | $I_C$ = 5mA, B = 0.1T<br>T1 = 25°C, T2 = 125°C | — | — | −0.06 | %/°C |
| Linearity (Note 3) | $\Delta K_H$ | $V_C$ = 5V, B1 = 0.05T, B2 = 0.1T | — | — | 2 | % |
| Specific Sensitivity (Note 4) | K* | $V_C$ = 5V, B = 0.1T | — | 30 | — | $\times 10^{-2}$/T |
| Internal Resistance (Output) | $R_{OUT}$ | $I_C$ = 1mA | 1800 | 2375 | 3000 | Ω |

Note 1 : $V_H = V_{HM} - V_{HO}$ ($V_{HM}$ is meter indication)

Note 2 : $V_{HT} = \dfrac{1}{V_{H(T1)}} \cdot \dfrac{V_{H(T2)} - V_{H(T1)}}{T2 - T1} \times 100\ (\%/°C)$ $V_{HO}$ : Residual Voltage

Note 3 : $\Delta K_H = \dfrac{K_{H(B2)} - K_{H(B1)}}{1/2\{K_{H(B1)} + K_{H(B2)}\}} \times 100\ (\%)$, $K_H = \dfrac{V_H}{I_C \cdot B}$ $K_H$ : Product Sensitivity

Note 4 : $K^* = V_H/(R_d \times I_C \times B) = K_H/R_d$

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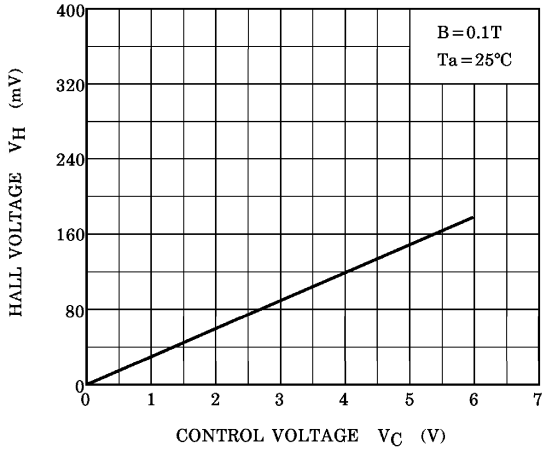
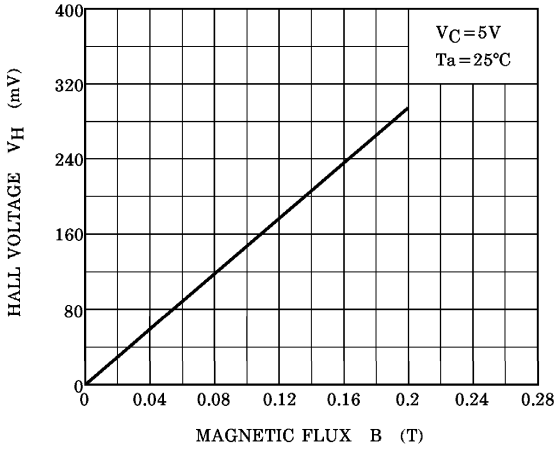
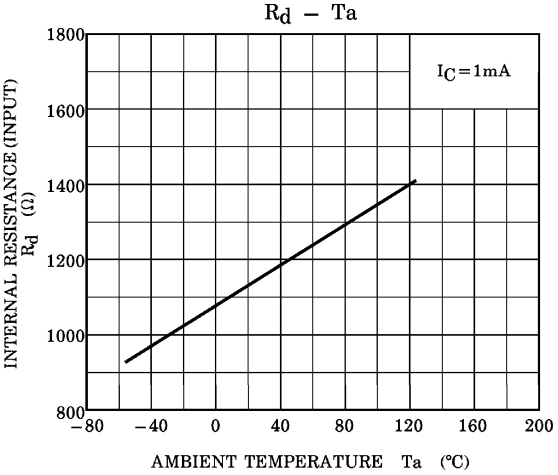
$V_H - V_C$



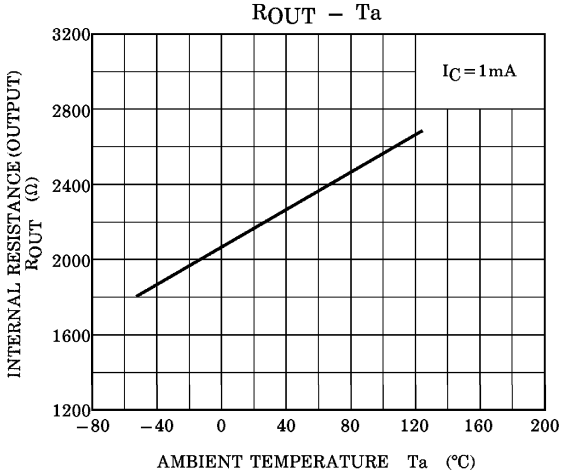

$V_H - B$



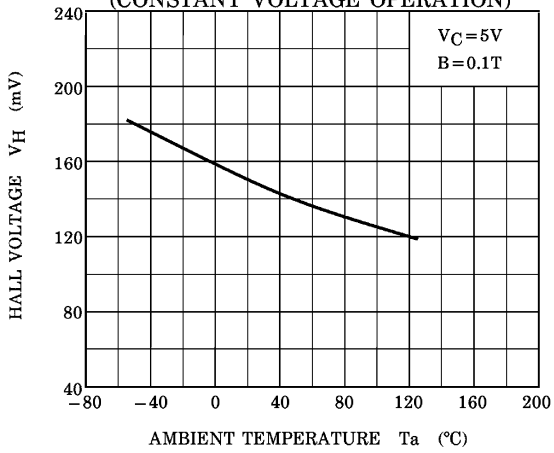

$R_d - Ta$




$R_{OUT} - Ta$




$V_H - Ta$ (CONSTANT VOLTAGE OPERATION)

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